

Applicability of Altman's Revised Model in Predicting Financial Distress: A Case of PN17 Companies Quoted in Malaysian Stock Exchange

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Abstract

A Practice Note 17 (PN17) Company is a listed company in the Malaysian Stock Exchange that is financially distressed or does not have a core business or has failed to meet minimum capital or equity (Less than 25% of the paid up capital). Financial analysis method can be used to detect the failure of this company. As of 9th August 2010, there are still thirty four companies listed on Malaysian SE, classified under the PN17 List. These companies have entered into the PN 17 list in accordance with the existing standards. There are also investors who do not know the status of these listed companies. A real and full attention has not yet been given to these companies. Analytical studies and scientific researches are almost still lacking on the PN17 Malaysian Companies. The aims of this research are to examine the Applicability of Altman Z score in determining the financial failure companies, use Altman Z Score to examine whether there is a successful company between PN17 companies listed in the Stock Exchange of Malaysia. Furthermore, to determine whether all the PN17 Companies are listed in Malaysian Stock Exchange financial failure companies, to examine the reports of the financial situation of companies listed on Bursa Malaysia Statistical lists to analyze the data. This study answered the research questions formulated. The analysis of this study was made on a sample of 52 Companies where these financial data were collected from the records over the period from 2003 to 2010. This study found that not all the PN17 Companies are financial failure Companies. Altman Z score can be used to detect financial distress of a company.

Key Words: Stock Exchange, Financial Analysis, Distress companies, Investments.

1.0 Introduction

The Malaysian central bank was established in 1959. It plays a key role in the financial sectors in the infrastructure development of Malaysia's economy. Securities Commission in Malaysia was established in 1993 for promoting the development of Malaysian securities' market in accordance to The Malaysian Securities Law 1993 (Sanaa, 2009). The Malaysian Stock Exchange holds a very strict view of breaches to the Malaysian Stock Exchange Rules and the Malaysian Stock Exchange Listing Requirements; as these breaches have the potential to undermine the investor's rights and protection. To undertake enforcement proceedings and actions so as to identify any contravention of

the Malaysian Stock Exchange Rules and the Malaysian SE Listing Requirements and initiate legal action where necessary, to put into effect the enforcement decisions and actions.

Each year, the Malaysian Stock Exchange makes enquiries and investigates potential rule breaches and depending on the conduct involved, the facts and circumstances will trigger a variety of responses for the breaches / non-compliances including referrals of potential and significant contravention of the Capital Markets & Services Act 2007 to Securities Commission. Enforcement actions or sanctions by the Malaysian Stock Exchange are merely one of the tools available to address the breaches of the Malaysian Stock Exchange Listing Requirements and Rules.

According to the Malaysian Stock Exchange Listing Requirements and the Rules, a listed company that is financially distressed or does not have a core business or has failed to meet the minimum capital or equity and companies' shareholders' funds (less than 25% of their total paid-up capital) will be classified as a PN17 Company. (www.klse.com, retrieved on 7th February, 2010).

Malaysian SE has frequently reprimanded companies for the breach of Listing Requirements of the Malaysian Stock Exchange. This has resulted in increasing calls on objectivity and uncovering the risks in the Malaysian financial markets because an early uncovering of weaknesses in the markets enables an immediate intervention. Consequently this will avoid the crises in the financial system (Michael, 2007; Hoom, 2002).

Hasabullah et al., (2009) has provided an insight into the financial analysis of data by using ratio analysis, which can be used as an early alerting method for financial failure among companies listed in the stock exchange. Financial analysis is a tool that helps management to make decisions and plans and controls them. During the last century, a number of events in the international economy greatly affected the performance of countries in the international economic environment and chronic crises of the stock markets. The financial markets in Southeast Asia in 1997, have witnessed a major breakdown in both Hong Kong and Indonesia. The crisis also erupted in Philippines, Thailand, South Korea and Malaysia, which unexpectedly led to the spread of infection in these Asian countries for the failure of companies as well as political instability. The Malaysian experience was a great example to others in improving their performance in the market (Nahar et al., 2004).

The use of financial analysis has increased in recent decades due to the increase in both industrial and commercial projects and the competitiveness among them, establishing standards and criteria of the sectors of such markets to monitor and assist in establishing the decision. Globalization is an era, which is considered as a revolution of information, which has triggered the need to analyze and treat huge numbers of data (Mohammed, 1997). Advancement is another important factor that has led to the necessity of providing investors with the many needed financial criteria, such as Technology, Economics, Management and Accounting. All these represented an accelerating issue for the giant, limited, and multi-national companies to appear (Ali, 2008). Altman and Beaver showed a financial statement, to be sufficient information for a highly discriminate function for large businesses (Horrigan, 1968).

2.0 Literature Review

These are companies listed on the Malaysian Stock Exchange that are classified under PN17 (Practice Note 17) and are generally financially-troubled companies. The Stock Exchange of Malaysia classified listed companies with financial problems under two categories; namely PN4 and PN17. PN means Practice Note. Basically, PN17 stands for Practice Note 17/2005 and was issued by the Malaysian Stock Exchange and it relates to companies that are in financial distress. Companies that fall within the definition of PN17 will need to submit their proposal to the Approving Authority to restructure and revive their company in order to maintain the listing status in the Malaysian Stock Exchange. Many investors wonder why some companies turn into PN17. If it is scrutinized carefully, it seems that these companies are usually poorly managed or do not have good track records. The reasons as to why investors continue to hold on to these PN17 companies include not keeping a proper track of the companies' financial performance; investors are not aware that they are holding

on to stocks of companies that have been classified under PN17. In some cases, the investors do not even notice that these companies have been delisted (Kok, 2010).

Financial failure prediction models were studied for over 70 years. Primarily the research consisted of statistical models prepared through empirical analysis and attempted to explain the results through mathematical models. Jones (1987), however, stated that the lack of a foundation theory does not necessarily seriously impede research on financial failure prediction. Scott (1981), stated that he found a significant amount of overlap between the empirical predictions and the theoretical models and suggested that failure prediction is both theoretically and feasible empirically explainable (Ahn, 2000).

One of the major purposes of financial analysis is studying the financial failure; specifically, in the insurance field, where projects need bank loans for limiting and avoiding bankruptcy risks (Edward, 1968). Moreover, purposes of the financial analysis are to predict the processes that produce the financial failure, to activate many reasons and factors over long periods of time up to the case of inability to pay obligations and access to new commitments, loss of financial balance and operating cash. The result is that the company is experiencing financial hardship and the inability to pay their existing obligations in a timely manner and indicators, and that is why they suffer from such problems (Hayali, 2004). There are cases where classical inspection is not able to detect issues and deviations in financial management reporting. However, through the use of financial analysis methods, such deviations can be tracked in greater details. Financial analysis is also used in evaluation works for obtaining concise and realistic financial and accounting reporting (Ahn, Cho and Kim, 2000). Problem arises pursuant to the hiding important information by those, who prepare the financial reporting and with the lack of commitment by many companies and facilities to disclose the reported accounting detected for not adhering to laws and rules in line with the recommendations and principles of the International Accounting Standards Committee. Therefore, an important function of the financial analyst is to show the true picture of the facility by ensuring that accounting and financial reports are professionally revealed (Ali, 2008 and Hayali, 2004).

Researchers' attention began to focus on analyzing the financial conditions of companies in the sixties in the United States with the encouragement of the American Institute of Certified Public Accountants, and the Securities and Exchange auditor's role in early warning of the incidence of corporate bankruptcy. Beaver was the first researcher to complete a study in this area in 1966. He built a model which is known as complex financial ratios. Later, researchers from Britain, Canada, and the United States have done similar studies in this field, where Altman is considered the most common model among them (Mohammad, 1997). Financial ratios serve as financial analyst in the evaluation of corporate performance in the areas of profitability, liquidity and solvency, as well as the efficiency of management in the design and implementation of funding policies and investments (Byrne and Barron, 1993).

It should be noted that some of the studies did not use explicit styles of explanation. Most of these studies used the same model as part of the financial ratios without the Altman model's application. Eventually, this is one of the positives of this study, because predicting financial failure is not enough to study the financial situation of the companies from various aspects, and these studies also recommend that a comparison in the process of analysis of each company either display the data for the past five years and compare with others in different sectors, while preferably compared in both directions, because the situation in the sector also is not known, the sector for the same company has focused on previous studies on the use of a set of financial ratios in the analysis of financial failures that have been identified and predictable, without the benefit of Altman's model, so the study focuses on the possibility of using this method (Mohd et al., 2006). It was adopted in the analysis of financial failure away from the interpretations and differences of opinion, and after reviewing the past studies only Altman specific numbers that can be measured or used as an indicator to predict or explore for better or worst financial status. However, as of 9th August 2010, there are still thirty four companies listed on the Malaysian Stock Exchange that are classified under PN17 (Practice Note 17) List and these companies have entered into the PN 17 list in accordance with the existing standards, (www.klse.com, accessed on 11th August, 2010). The Star, a local newspaper highlighted among

others the negative views expressed on PN17 Companies, especially by the auditors on the payment-failure of loans and the main benefits, companies' shareholders' funds are less than 25% of their total paid-up capital (Kok, 2010). Also, there are Companies that were classified under the PN 17 list as early as the year 2005 that failed to resolve their financial problems. Among such companies are also those that were warned for the lack of disclosure of data or to reconsider their regularization plans. Companies that continued were unable to regularize which also led to their delisting from the listing under the Malaysian Stock Exchange (www.klse.com, retrieved on 17th May, 2010).

On the other hand, investors are very concerned about whether to cut losses or hope in the healing of these shares for stocks they owned that were classified as under the companies PN17category. Some investors are also unaware that they are those holding shares in companies that have been classified under PN17. In some cases, investors do not know about written off notices of these companies (Kok, 2010). Moreover, despite the recent strong stock market rally and performance, some investors may still doubt the financial health of some listed companies (Kok, 2010), whereby many questions, worries and comments on the future of PN17 have arisen. However, a real and full attention has not yet been given for these companies. Analytical studies and scientific researchers are almost still lacking on PN17 Malaysian Companies listed in the Malaysian Stock Exchange.

3.0 Methodology

This study attempts to determine the extent of (Altman Model 1968) used to assess the financial status of the 52 PN17 Companies which are listed in the Malaysian Stock Exchange. The data of this research work were collected from the listed companies' financial reports available at the Malaysian Stock Exchange library. This study used one category of sampling methods namely; Non-Random of Probability sample (censor method). This research chooses the stratified sampling which divides the population into certain classes based on the sectors to determine the size number of the sample selected (Mohammad et al., 1999) and (Ahn et al., 2000). Selected on a stratified non-random basis, fifty-two PN17 companies were studied in this research. There were 17 companies which were delisted out of the Malaysian Stock Exchange and 34 companies still active under PN17 list, and one PN17 Company that has been regulated.

3.1 Research Hypothesis

The hypothesis formulated for this empirical verification is as listed below:

H1- Not all of the PN17 companies are financial failure companies.

3.2 Measurement

This section discusses the specific measurement item (Altman's Model 1968). The measurement is either adapted from previous studies or was developed for the purpose of this study.

Altman's Z-Score Model (1968).

This model is based on five independent variables, each of them representing financial ratios and the rates recognized by the dependent variable (Z). It was developed to complement the model developed by Altman in 1968. The Altman's Z-Score Method was developed by Dr. Altman in 1968. It is a multivariate formula to measure the financial health of a company on whether it will enter into bankruptcy in the forthcoming two years.

This method uses five common business ratios: earnings before interest and tax (debit)/total assets ratio, sales/total assets ratio, market value of equity/market value of total liabilities, working capital/total asset ratio and retained earnings/total assets (Edward, 1968).

The original Altman's Z-score formula was as follows:

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.010X_5$$

$$X_1 = \frac{\text{Working Capital}}{\text{Total Assets}}$$

Measures liquid assets in relation to the size of the company

$$X_2 = \frac{\text{Retained Earnings}}{\text{Total Assets}}$$

Measures profitability that reflects the company's age and earning power

$$X_3 = \frac{\text{Earnings before interest and tax}}{\text{Total Assets}}$$

Measures operating efficiency apart from tax and leveraging factors, it recognizes operating earnings as being important to long-term viability

$$X_4 = \frac{\text{Market value equity}}{\text{Book value of total debt}}$$

Adds market dimension that can show up security price fluctuation as a possible red flag

$$X_5 = \frac{\text{Sales}}{\text{Total assets}}$$

For sales turnover (It measures revenue generating ability of a company's assets)

Z = Overall Index

Edward Altman (1968) was the first to use multivariate analysis to analyze the ratios of various bankrupt and non bankrupt groups and to look at the effect of using different combinations of financial ratios to predict business failures (Mohamed, 1997). Altman's model uses two years continuous financial results to assess a company's failure.

Table 1: Threshold differentiating a Financial Failure and a Non-Financial Failure Company by using Altman Z-score.

Financial Performance	Altman Z Score
Failure of Company	<1.81
Non failure of Company	>2.99

The analysis here is restricted to a sample of failed companies selected from Malaysian Stock Exchange. The Altman [1968] model was used to test the hypothesis formulated. Two statistical procedures (Descriptive statistics, and Independent Sample Test) were employed in this research. The threshold of Altman model that was used to determine the financial status of the companies studied. Threshold for financial failure was used to differentiate a Financial Failure and Non Financial Failure Company using Altman Z-Score. The set of threshold used in to measure the financial performance in accordance to Cowen and Hoffer (1982), Courtis (1978), Mohammed (1997), Ali (2008) and Edward (1968).

This is a quantitative study. The qualitative aspects or situations of the companies are not taken into considerations.

3.3 Descriptive Statistics and Statistical Analysis

The identified companies of the Malaysian Stock Exchange in this study are profiled and reported using descriptive statistics.

The statistical tools from the Statistical Package for Social Science (SPSS) software version 16.0 that were used to analyze the data and test the hypotheses are listed below:

- (a) Descriptive statistics.
- (b) Independent Sample Test.

4.0 Findings

Over the years, most research works are in the area of prediction the developing of financial failure using the Altman's model 1968. However, little attention has been paid to post-analysis using Altman model to examine the reliability of these models in practice (Mahmood & Talal, 2009). Such models are extensively used in practice by financial analysts. It would seem essentially that the reliability and validity of these ratios such a model. In this study, it is found that Altman Z-score can be used interchangeably to determine financial failure of company.

Data for this research were obtained from the financial reports of the companies listed in the Malaysian Stock Exchange obtainable from the library of the Malaysian Stock Exchange. The analysis was made on a sample of 52 Companies where these financial data were collected from the records over the period from 2003 to 2010.

The Fifty two Non-PN17 companies were selected by using the random sample method from Malaysian Stock Exchange to give each company an opportunity to appear in this study, selected on a stratified random basis, based on the number of PN17 Companies.

There are fifty-two companies classified as PN17 List of the Malaysian Stock Exchange in the Main Investment Market from the period 2003 to 2010. This number of PN17 Companies was based on cut-off point as at 9th August, 2010. It is composed of thirty-four existing PN17 Companies. Seventeen already delisted PN17 Companies and one PN17 Company that was successfully regulated. Altman Z-score was computed for these identified companies from the nine sectors of industry listed in the main board in the Malaysian Stock Exchange to test the hypothesis formulated. The profiles of these selected companies are profiled in Table 2.

4.1 Profile of Companies

Table 2 provides the general details of the 52 Companies studied. The Companies are described under three headings, that is, industrial classification, paid-up capital and number of Companies with the respective criteria of PN17 triggered.

a. Industrial Classification: There are 19 PN17 Companies from the industrial products sector, 14 from the trading services sector and 6 from the properties sector, 5 from the construction sector and 4 from the consumer sector and only one company from the technology sector, the finance sector, the hotels sector and the plantations sector.

Table 2: General Details of 52 PN17 Companies Studied.

Industry Classification	Number of PN17 Companies
i. Consumer	4
ii. Industrial Products	19
iii. Construction	5
iv. Trading Services	14
v. Technology	1
vi. Finance	1
vii. Hotels	1
viii. Properties	6
ix. Plantations	1

Total	52
a. Paid-up capital (MYR)	
i. Less than 50,000,000	22
ii. More than 50,000,000 and less than 100,000,000	13
iii. More than 100,000,000 and less than 150,000,000	7
iv. More than 150,000,000 and less than 200,000,000	6
v. More than 200,000,000 and less than 300,000,000	1
vi. More than 300,000,000 and less than 400,000,000	3
vii. More than 400,000,000	0
Total	52
b. Number of Companies with their Criteria of PN 17 Triggered	
i. Paragraph 2.1 (Prescribing certain criteria in relation to the financial condition of a listed issuer)	21
ii. Paragraph 3.1 (Submitting and implementing of regularisation plan)	3
iii. Paragraph 3.2 (Regularisation plan)	1
iv. Paragraph 4.0 (Disclosure obligations of PN17)	1
v. Paragraph 4.2 (Announcing of the time lined implementation of the regularization plan)	1
vi. Paragraph 16.11 (Delisting assured by the KLSE in failure to comply with the requirements)	1
vii. Criteria triggered not mentioned	25
Total	52

b. Paid-up Capital: For less than MYR 50, 000,000, there were 22 companies, companies with more than MYR 50, 000,000 and less than MYR 100, 000,000 there were 13 companies, for more than MYR 100, 000,000 and less than MYR 150, 000,000 there were 7 companies and for more than MYR 150, 000,000 and less than MYR 200, 000,000 there were 6 companies, for more than MYR 200, 000,000 and less than MYR 300, 000,000 there was 1 company, more than MYR 300, 000,000 and less than MYR 400, 000,000 there were 3 companies and there was not any company for more than MYR 400 000,000.

c. Criteria of PN17 Triggered: There are 52 Companies classified under PN17 criteria. Among these, 21 are listed under (Paragraph 2.1) and 3 under (Paragraph 3.1) and 1 under (Paragraph 3.2), 1 under (Paragraph 4.0), 1 under (Paragraph 4.2), 1 under (Paragraph 16.11). The remaining 25 PN17 companies did not mention under which criteria of practice notes 17 they entered.

4.2 Test of Hypothesis

Altman Z-score was used to determine Hypothesis **H1**: Not all of the PN17 companies are financial failure companies. This is done by separating the financial failure and non-financial failure threshold value (refer to Table 1) of the respective ratios and the results are tabulated in Table 3.

Table 3: Financial status of PN17 Companies based on Altman Z-score.

Measurements	PN17					
	*Year 1			*Year 2		
	Failure	Non-Failure	Data not available	Failure	Non-Failure	Data not available
Altman Z Score	37	12	3	42	7	3

*Note: * Year 1 for the number of PN17 companies prior to classified as PN17 and year 2 is the year after they were classified as PN17.*

Table 3 shows that not all the PN17 companies are financial failures. In the first year, using Altman Z Score of the 52 PN17 companies, it indicates that there are 37 financial failure companies and 12 non-financial failure companies for the PN17 companies and the data for the other 3 companies are not available. For the second year, it is observed that not all the PN17 companies are financial failures where a test of the 52 PN17 companies, using Altman Z Score indicates that there are 42 financial failure companies and 7 non-financial failure companies for the PN17 companies and the other 3 companies do not have the data. Thus, the result of the findings supported Hypothesis H1.

The results showed good performance with the correct classification of a purpose, agreed with what Hasbullah et al., (2009) have explained. In addition, this result can be used for the annual assessment of the client status in making financial decisions, to renew or continue the loan. Investors / stakeholders in the recognition of an appropriate portfolio of investment, investors can benefit from the results to make decision. It can also be used to enhance the outcome indicator of the financial situation to help the investor in choosing companies.

The literature on prediction of financial failure using statistical models discusses the development of numerous bankruptcy prediction methods through variables that are calculated from the firm's financial data. In the study, the research samples consist primarily of publicly traded companies. However, these predictor variables have not been applied to the different companies in different sectors, and the effects of Altman's model in relation to financial failure prediction of PN17 Companies of Malaysian SE have never been studied.

The results of this study demonstrate that the use of Altman's model as assessor of financial failure of a company. It cleared doubts about the credibility of this model and the acceptability of using this model as a means of assessing potential financial failure of company. This is in line with studies done by Richard et al., (2002), Martha (2005).

5.0 Conclusion

An alleged limitation of research of this type is that it lacks a coherent theoretical basis, (Ali, 2004) notes that without a theory of financial failure, it is difficult to ascertain whether a model developed from data from one set of companies is appropriate for assessing the financial failure of a company operating in a different economic or temporal setting. However, despite the lack of a theory of bankruptcy, the findings of the bankruptcy studies can provide economic interpretations, and thus, lead to a better understanding of the phenomenon of financial failure, (Timothy, 1991). As stated above, the findings of this study confirm the results of earlier studies, regarding the relationship between failure and non-failure firms.

This study found that although the conditions necessary to file for financial failure have been relaxed, ratios calculated entirely from financial statement information have virtually the same classification of accuracy. This study also provided an insight into the use of financial information by the markets. Although the evidence does not support the existence of a monotonic relationship between changes in financial failure model probability assessments and abnormal stock returns, the switching point

analysis provides evidence that a combination of financial statement information and news releases in the financial press is used by the market in assessing the value of a firm's securities (Timothy, 1991).

This study used Altman Z-score model to test the hypothesis formulated. The purposes are to test examine the applicability of Altman's Z-score model in determining the financial failure companies, and to examine whether all the PN17 Companies listed in the Malaysian Stock Exchange are financial failure Companies and to determine the financial failure of companies listed on Bursa Malaysia. And the work of this study was based on data of all the fifty-two PN17 Companies which were selected from different sectors listed on the Malaysian Stock Exchange and the data of the PN17 Companies used were based on the financial information records of the respective companies available at the Library of the Malaysian Stock Exchange located in Kuala Lumpur.

The study is clearly noted to develop a general, easy and clear framework of statistical models, which selected its own scale, as well as calculated the value and obviously to measure financial performance, financial failure of companies that are under this study is linked to the value of financial performance and through styling results for companies and selected model. Thus, homogeneity and convergence are achieved in the results for all companies, indicating that the application is a significantly successful method, what has become clear as a result of this research is the value of the Altman's 1968 model. It appears to be generalised far beyond their initial intended uses and are thus a powerful tool for future research (Mohammed, 1997) and (Ali, 2008).

This research tests one hypothesis; one dichotomous data set of failed and non-failed Companies. The results reveal that the Altman Z-score of failed Companies are significantly different from non-failed Companies two and three years prior. However, application of the model one year prior to failure demonstrates a difference in Altman Z-score between failed and non-failed companies. In support of Hypothesis 1, a positive result of Altman's model 1968 is a successful model to determine the financial situation of PN17 companies, the finding gives credence to the impact of financial analysis results.

Similarly, PN17 companies' data were collected and after having been closely examined, it is noted that most of these companies faced financial difficulties; moreover, these companies did not regularly disclose their reports. It is also noted that only one company returned to the main official list as the result of solving its financial troubles. This study was limited to 52 PN17 companies of the Malaysian Stock Exchange based on records from the years 2003 to 2010. This is a quantitative study. The qualitative aspects or situations of the companies are not taken into considerations.

This study leads to several conclusions. Firstly, Altman's model 1968 is a successful model to determine the financial situation of PN17 companies. Secondly, not all the fifty two PN17 Companies listed in the Malaysian Stock Exchange are financial failure Companies. Thirdly, most of the companies listed in the PN17 that are listed in the Malaysian Stock Exchange have financial difficulties.

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